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1838

LECTURE

INTRODUCTORY TO THE COURSE ON

ANATOMY AND SURGERY,

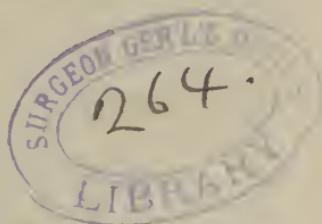
IN THE

UNIVERSITY OF VIRGINIA,

FOR THE SESSION OF 1837-8.

BY J. L. CABELL, M. D.

Published by the Members of the Class.



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UNIVERSITY OF VA., DEC. 21, 1837.

SIR,

At a meeting of the Medical Class, held this day, the agreeable office was conferred on us, to solicit, for publication, a copy of your Introductory Lecture.

Entertaining the highest opinions of its merits, we hope that we may not prove unsuccessful in obtaining a compliance with the wishes of your class. We are, with sentiments of great respect and esteem, yours &c.

W. R. ROBERTS,
G. W. HANSBERGER,
J. R. BRIGGS,
R. H. MASON,
W. F. ROBERTSON,
E. W. MOORE,

} COMMITTEE.

To DR. J. L. CABELL. *Professor of Anatomy and Surgery.*

UNIVERSITY OF VA., DEC. 22, 1837.

GENTLEMEN:

Your letter conveying a flattering expression of the wishes of the Medical Class to obtain for publication a copy of my Introductory Address, was received yesterday.

Although I may not hope that its numerous faults will be regarded by others, with the partiality which has dictated this request on the part of the members of your class, I will place the address at your disposal, as it will at least serve to exhibit the spirit in which I have undertaken the responsible but pleasant duties of your instructor.

I beg you will return my grateful thanks to the members of the class for the kind feelings with which they have welcomed me, and accept for yourselves the assurance of the sincerity, with which I am

Your friend and ob't. servant,

J. L. CABELL.

TO MESSRS. W. R. ROBERTS,
G. W. HANSBERGER,
J. R. BRIGGS,
R. H. MASON,
W. F. ROBERTSON,
E. W. MOORE,

} *Committee of the Anatomical and Surgical Class.*

INTRODUCTORY LECTURE.

GENTLEMEN,

In assuming at this late period of the session, the responsible duties assigned to me as one of your instructors, I feel it due to myself to make a brief statement of the circumstances attending my long absence, which, by interrupting the usual order and division of your studies, was calculated to disappoint your reasonable expectations. And though this inconvenience has been happily anticipated and prevented by the kindness of the Professor of Medicine, I am yet anxious to convince you of the fact, that my delay was unavoidable and should not be attributed to an indifference, or want of proper regard for the interests of a class, with the members of which, I am now to be connected by relations of a pleasing, but responsible character.

I was at Hâvre on the eve of embarking for this country, when I received, with the official notification of the appointment, with which I had been honoured by the flattering kindness of the Visitors, their letter of instructions for the purchase of Anatomical plates and preparations. Although this communication reached me at a later date than was anticipated, from an estimate of the usual length of voyages to Europe, I yet thought it my duty to return to Paris, for the purpose of executing the commission with which I was charged. For the specific character of the instructions, besides indicating a marked disposition on the

part of the Visitors, to improve the prospects of the Medical School, and extend its sphere of utility, also impressed upon my consideration, the importance of obtaining, for immediate use, many of the articles demanded.

I was enabled to execute their commission, in time to sail by the packet immediately succeeding, in which I arrived at New York, after an unusually long passage, at the end of last month.

Any subsequent delay has been occasioned by business connected with the interests of the Anatomical department; such arrangements having been made as will, I have reason to hope, ensure all the facilities requisite for prosecuting satisfactorily the study of Practical Anatomy.

I will not conceal from you, gentlemen, that to my first feelings of gratification and delight, on the occasion of an appointment which has realized, sooner than I could have dared to anticipate, my highest hopes of professional distinction; was soon added the anxious apprehension lest in the exercise of new and untried duties, I should be oppressed by the weight of their responsibility, and by difficulties great under any circumstances, but necessarily increased in the case of one exposed to the prejudices usually entertained against youth and presumed inexperience. But I am equally frank to avow, that I have been sustained by the cherished hope of your generous indulgence and earnest co-operation. Young, like yourselves, I enter upon the performance of my task with the ardour and energy of youth, and seek your confidence and friendship, that we may pursue with zeal and harmony, the laborious studies of the dignified profession you have embraced, a profession, as honourable as any, to the exercise of which a feeling and intelligent man can devote his life and talents.

It will be my duty to instruct you in those branches of Medical Science, which form the groundwork of your professional studies. It will serve as an appropriate introduction to their study, to examine briefly some of their generalities, their object and use, and the plan of instruction, that may, under existing circumstances, appear most suitable and practicable. In these general remarks, it is my intention to dwell chiefly upon those divisions of Anatomical Science, which are too much neglected in most schools of Medicine.

Anatomy, in the restricted sense in which it is commonly employed, is the science of the organization of the human body, and has for its object, the study of the different

parts or organs of which that body is composed. It is called Physiological Anatomy, when restricted to the study of the healthy state of the organs; and Pathological or morbid Anatomy, when it examines the alterations produced by disease in their texture or composition.

When the first teaches us simply the exterior conformation of organs, their volume, situation in the body, density and other physical properties, it is termed Special or Descriptive Anatomy. This was the first mode of description of organs pursued by the ancient Anatomists, and has by the successive discoveries of zealous investigators, reached a degree of perfection yet to be obtained in other branches of Anatomical Science. During the sixteenth and seventeenth centuries especially, the labours of the great Italian Anatomists had so nearly exhausted the field of discovery, that little else was left for their successors, than to classify these known facts, and thus adapt them for all the applications of which they were susceptible.

The first divisions adopted by them were signally defective, in respect to many important requisites of a scientific classification, and nothing worthy of this appellation was proposed, until the celebrated Bichat, whose early death science yet deplores, developing the idea of Pinel, who in his "*Nosographie Philosophique*," classified diseases according to their seats in the different systems, observed, that the simple tissues entering into the composition of compound organs, have a similar texture and identical vital properties, in whatever organ they are found. Dividing then, the body into a number of simple tissues or systems, and examining their minute texture and general properties independently of the organ of which they formed constituent elements, he had the glory of opening a new field of inquiry, which even in his own day, effected a revolution in Medical Science. General Anatomy, indeed threw so much light upon healthy and morbid physiology, and consequently upon their applications to therapeutics, that a new impulse was given to their study, which continuing to the present day, has made the nineteenth century the most memorable in the annals of Medicine, for the constant progress of the science.

No sooner had Bichat's work been published, than Broussais, following out the ideas of that celebrated genius, undertook to give them an application to Pathology, and in his "*Phlegmasies Chroniques*," commenced a reform, of which, though he has been since outstripped by less

speculative pathologists, that work is still esteemed one of the proudest monuments.

It is general Anatomy, which teaching us the vital properties of the tissues in health, explains how the character of these tissues modify the diseases of which they are the seats. For example, it teaches us that we have not completed our diagnosis in tracing an internal inflammation to a limited portion of the intestinal canal, for sero-enteritis or inflammation of its peritoneal coat, differs widely from muco-enteritis, where the disease is seated in its mucous membrane.

It is studied too, of late, in connexion with the pathology and treatment of Surgical diseases, and opens, as we shall presently see, a fertile ground for future cultivation.

Pathological Anatomy teaches the alterations produced by disease, in the form, position, colour, consistence and intimate texture of organs. At an early period in the history of Medicine, pathologists felt the necessity of looking beyond the symptoms or outward manifestations of disease, for some modification in the structure of the organs by which the disturbance of function might be explained; accordingly, as early as the reign of the Ptolemies, the Alexandrine School endeavoured, as we are told, to discover by post-mortem investigations, the seats and causes of diseases. After a long interval, the great Italian masters, of whose zeal in the cultivation of the science of Descriptive Anatomy, I have already spoken, began also to turn their attention to the diseased structure of organs. The results of their investigations were collected and classified by Bonetus and Morgagni, who thus created a new branch of Anatomical Science.

But though thus early cultivated, it is only of late years, under the new impulse given to its study by the rich discoveries of Bichat, that Pathological Anatomy has done much to establish the connexions between diseases and the anatomical lesions on which they depend. Much, however, as has been done, let it be understood, that it is not pretended that all varieties of diseases have been traced to an appreciable lesion; for though analogy and continued discoveries justify us in assuming, that every diseased condition of an organ must be produced by a corresponding derangement in the composition of that organ. Pathological Anatomy has not yet explained the character of the material derangements which accompany that large class of diseases dependent upon lesions of innervation. It is

now, too, conceded on all hands, that the fluids play a most important part in the production of many diseases; of some of their changes, I shall have occasion to speak, in connexion with important points of Surgical Pathology; but an examination of their morbid states requiring an analysis, more minute than can be afforded by the ordinary instruments of the Anatomist has been but little attended to.

Of the importance of Pathological Anatomy in relation to Surgical Pathology and Therapeutics the most striking illustrations can be given. It explains the union of wounds, the consolidation of fractured bones, and teaches the changes which occur in and around the joints after a dislocation, and by which a reduction is rendered impracticable after the lapse of a certain interval of time. It teaches also the changes in the relative position of organs induced by the pressure of aneurismal or other tumours, a knowledge essential to the Surgeon who undertakes to penetrate with the knife into contiguous organs. The celebrated Scarpa, indeed, referring to the rapid progress of Surgical science, in recent times, attributes it to "the 'comparison of the healthy state of the organs, with their 'different diseases depending upon alteration of texture, 'disorder of function, solution of continuity or change of 'situation.'—" "From these important results are deduced 'as so many corollaries, the most rational methods of 'treatment with which modern Surgery is enriched; me- 'thods to which we also owe many improvements in the 'art of operating. There are, it is true a certain number 'of Surgical operations, which require for their prompt and 'safe execution, nothing farther than an acquaintance with 'the healthy anatomy of the parts. But in many other 'cases, the Surgeon cannot, though he may be well in- 'structed in Anatomy, promise himself success, unless he 'has made a particular study of the numerous changes of 'position, and alterations of texture of which the parts on 'which he is to operate are susceptible. If he is not en- 'lightened on all these points, false appearances will de- 'ceive his judgment and lead him into grave and often 'irreparable errors."

This celebrated Surgeon and Anatomist, offered a convincing proof of the truths just quoted, by a reference to the different kinds of hernia and their numerous complications. "For, assuredly, no Anatomist would believe that 'the cœcum naturally tied down in the right iliac region

‘and the bladder situated low down in the pelvic cavity, ‘could suffer, without being ruptured, so considerable a ‘displacement as to escape through the inguinal canal and ‘fall into the scrotum, or that the right colon could pass ‘out of the abdominal cavity through the left inguinal ‘ring, and the left colon through the corresponding open-‘ing of the opposite side.’”

In many cases, too, where there is no great change of position, such alterations may occur in the form, colour and texture of the organs, that the anatomist would never recognize under their new aspect the different tissues he might wish to examine.

You have seen, that Pathological Anatomy owes its most important discoveries, to the lights furnished by an acquaintance with the general properties of the tissues ; for this, an ample return has been made in its rendering clear many obscure points of healthy Anatomy and Physiology ; as the existence of blood vessels in parts, where, in health they had not been detected ; the mode of arrangement of the abdominal fascias, the most probable theory of the sounds of the heart, and nearly all that is known of the obscure physiology of the brain and nervous system.

Its applications to the different branches of the healing art, are then so numerous and important, that its omission, in a course of Medical instruction cannot be justified.

While the importance of this study has been so generally admitted, a very warm discussion on the proper method of pursuing it, was held by the two distinguished Pathologists who have done most to advance its progress. Laennec, not attempting to investigate the proximate causes of disease, was content to describe the well marked pathological cases and expose the characters by which they might be recognized during life and on the dead body. Broussais, on the contrary, regarding the morbid alterations, considered in themselves as objects of pure curiosity, and of no utility, unless studied in connexion with the supposed physiological modifications, which produced them, investigated their hidden causes, and was thus led to attribute most of the organic lesions to irritation or morbid exaltation of the vital properties. It is not my province to decide on the relative merits of these two systems, both of which have undoubtedly enriched the science with many valuable discoveries. You will, at a future period of your studies, examine the whole question for yourselves. I shall be obliged to confine myself to the plan of an-

nexing to a demonstration of the healthy state of the organs, a brief description of the alterations in their form and structure, produced by the principal diseases to which they are liable.

Nor have we yet exhausted all the resources of Anatomy, in acquiring a knowledge of the healthy and morbid structure of the organs and their general vital properties. To reap the full advantages of the study of this science, we must consider it in its immediate practical application to Medicine and Surgery, which is the object of *Surgical Anatomy*.

This term is of ancient origin, for such is the dependence of the *Surgical art*, upon a knowledge of the anatomical relations of the parts concerned in operations, that the idea of adding a few practical remarks to a special description of the organs, suggested itself to the earliest writers. But its true aim does not appear to have been felt, or at least nothing worthy the appellation was executed until the present century, when the investigations of English and French Surgeons exposed it in its true light, as "an examination of the numerous local particularities of the anatomical relations of organs, and of their influence on the development, the march, termination and treatment of diseases, and on the relative and absolute value of the operations."

It is when taken in this sense, that *Surgical Anatomy* must be considered a science of recent origin, which has thrown so much light upon the obscurities of *Surgical Pathology* and effected such numerous improvements in the art of operating, that I beg leave to call your attention to a few illustrations, borrowed from *Velpean's* excellent treatise, of the advantages of this mode of viewing Anatomy, in fixing the attention of a student, and suggesting therapeutical indications of the highest importance.

Immediately beneath the skin, there lies a whitish membrane of a spongy structure, forming a variety of the tissues called *cellular*, which, as many of you are aware, is the principal element and basis of the animal organization entering into the composition of all the organs into the body, and separating the minutest parts of which they are composed. In the situation referred to, it presents, according to *Velpean*, two principal varieties; one immediately subjacent to the skin, composed of filaments and adipose cells, has an areolar structure, while the layer more profoundly situated between the former, and the aponeu-

rotic membranes is in a state of greater condensation, and appears to be formed of superincumbent laminae, possessed of great extensibility. This particular arrangement, which as Velpean remarks, has not been noticed by other writers, because its importance was not felt; because, in other words, Anatomy was not studied Surgically, is susceptible of demonstration, and rendered highly interesting, when considered in connexion with the pathological consequences and therapeutical indications that result from it.

When inflammation, for example, takes place in the superficial or areolar layer, the distension caused by the congestion of the parts around the focus of irritation, exercising a pressure on the neighboring cells, favors their adhesion and circumscribes the disease within narrow limits, from which result what are termed phlegmonous abscesses.

The laminated disposition of the profound layer favours, on the other hand, the propagation of inflammation. For the peculiar structure of the areolar tissue above, and the density of the aponeuroses below, forces it to diffuse itself between the two. When pus, too, is effused between the folds of this membrane, instead of forming circumscribed collections, it passes readily to other points, and rarely making an exit by the ulcerative inflammation of the skin, continues to accumulate and spread until the surgeon, detecting by a manual examination, its existence and situation, is obliged to make incisions, directed by his knowledge of the anatomical arrangement of the tissues implicated.*

In that part of the course of lectures to be devoted to the study of Surgical Pathology, you will learn the nature and advantages of that mode of union of wounds which has been called union by the first intention. It is sufficient for my present purpose to say, that it is effected by keeping in immediate contact the edges of the wound with a view to determine their permanent adhesion, and that the simplicity of the means and beauty of result, in obviating as far as possible, a deformity on the surface of the body, have recommended its adoption in all cases where it is practicable. Latterly, however, it has been observed, that an attempt to produce this kind of union has been sometimes attended with serious and unpleasant consequences, and it

* *Traité complet d'Anatomie Chirurgicale &c., par A. Velpean,* tome 1.

becomes a most important question, that of determining the circumstances under which it may be tried with the greatest probability of success. This problem is in a measure resolved by an acquaintance with the particular arrangement of subcutaneous cellular tissue to which I have referred. It teaches that when the solution of continuity does not extend beyond the skin and the subjacent areolar membrane, the circumstances are favorable to an attempt at union by the first intention; for the inflammation being confined to the borders of the wound, adhesion of its edges is the natural result of that restorative process.

If, however, the wound implicates the laminated layer, an acquaintance with the characters of this tissue, instructs us to practice a wise caution and abandon all attempts to effect union by the first intention, as soon as we perceive signs of purulent effusion, from which may result erysipelas and metastatic abscesses, the most formidable affections that are known to complicate the cutting operations.

Surgical Anatomy has a great advantage, too, in fixing the attention of the student upon minute points of practical importance likely to be overlooked in any other system of investigation. Thus, it points out the importance of the small prominences on the surface of bones, as guides to the operator, and describing their situation and relations in connexion with a specific operation, impresses them upon the memory. You will see, hereafter, that a fruitful cause of purulent resorption and phlebitis after amputations in the continuity of bones is the exposure of their medullary membrane to the air, and to the unhealthy fluids secreted by the divided parts; and that it has been found safer in many cases to amputate at the joints, where the enveloping tissues being generally condensed, there is less danger of their imbibing the purulent matters. How important, then, it is to have a guide which will enable us to strike into a compact articulation concealed by the capsular ligament, by muscles or their aponeuroses, cellular membrane and the integuments. Now this end is generally answered by bony eminences, such as the one on the inner side of the scaphoid bone, which indicates the points where the incision should commence in the amputation of the foot at the medio-tarsal joint, or the tuberosity of the fifth metatarsal bone, which projects beyond the outer side of the complicate articulation between the tarsal and metatarsal bones.

We have, then, to examine with respect to each organ,

its situation in the body, its form, dimensions, density, colour and other physical properties, its relations with other organs, its texture and composition, its vital properties, and functions, its morbid derangement of structure, and the numerous particularities of pathology and therapeutics, in the order in which they suggest themselves in connexion with the anatomical relations of the parts. In this view are embraced physiological and morbid Anatomy and the practical application of these sciences to *Surgical pathology* and therapeutics which I have stated to be the aim of *Surgical Anatomy*.

It will be difficult to settle upon a plan which can reconcile the advantages of the different modes of exposition required by these several branches of Anatomical science. For while a division founded upon the physiological acts of the organs has its peculiar advantages, a topographical order of description will be more compatible with the necessary economy of subjects and more fruitful in practical applications. The order of study, I am about to expose to you, being suggested as most practicable under existing circumstances, will be modified, as time and circumstances may prove to be necessary.

First, will be examined the general properties of the cellular system, that elementary tissue which forms a part of every organ in the body, its texture, general distribution and morbid changes; reserving for future occasions, the special consideration of its varieties as displayed in the different regions of the body.

Having already studied the osseous system, your attention will next be called to an examination of those bodies which serve to reunite the separate parts of that system, and thus, again, of all the portions of the mechanism of the joints. From these, passing to an examination of the muscles implanted upon the skeleton, and constituting the agents of its varied movements, we will consider particularly, the part they play in producing luxations, and in facilitating or impeding their reduction.

Preparatory to the study of the Vascular system, which will be examined in the different regions of the body, I will point out the general properties and structure of the skin, and of its prolongation inwards, constituting the lining membrane of the hollow viscera. The healthy and morbid Anatomy of the latter will be largely dwelt upon in view of their vast importance in the animal economy.

Beginning, now, at the origin of the Arterial system, in

the left ventricle of the heart, and following it out to its periphery, I will mark off a portion, comprised within arbitrary limits, as the principal element of a region around which the other organs are grouped, and thus point out its relations with those organs; as with the bones, against which it may be compressed, with the nerves and veins, which must be carefully guarded, in the operation for placing a ligature upon the artery, with the muscles, which may be its satellites, and with the membranes, beneath which it lies. In a word, we can now study the connexions and mutual dependence of all the parts of the region, and the influence of the different "local particularities upon the development, the march and the treatment of diseases."

Completing the study of the vascular system, by examining the distribution of the veins and lymphatics, and investigating their functions, I will finish this part of the course, by a description of the nervous system and of the organs of the senses.

The sum now annually appropriated for the Anatomical department, added to the fee paid by each of you, will, I have reason to believe, enable me to afford you a regular supply of materials for dissection. In connexion with the demonstrations from the subject, will be exhibited the splendid coloured plates now belonging to the University, which being drawn from nature and well executed are highly useful in fixing the objects in the memory.

I have not deemed it necessary to speak of the importance of having an acquaintance with the functions executed by the organs in health. Physiology, indeed, now forms a part of the studies of every well educated gentleman. Surely, then, it is enough to suggest to you the propriety of reading some work, which treats this interesting subject more in detail, than can be done in the demonstrations before the class, consistently with a proper arrangement of our other studies. That of Dr. Dunglison, whose extended reputation as an author and instructor, is its best recommendation, "comprises a full investigation of every function executed by the various organs in health, and is designed to convey accurate impressions regarding all the deeply interesting phenomena that are associated with the life of man, both as an individual and a species."

Thus, then, the first half of our course will embrace those branches of Medical science which form the groundwork of your professional studies. After all that has been

said, need I repeat to you, that the different branches of Anatomical science, fruitful in their applications to Pathology and therapeutics, deserve and demand your earnest attention? Do I need to stimulate your exertions by reminding you that while the names of Vesalius, Fallopias, Eu-stachius and others, who zealously investigated the wonderful structure of the human body, have been handed down to an admiring posterity, their contemporaries, who despised the labours of dissection have been long forgotten; that it was an examination of the anatomical structure of the veins which suggested to Harvey the discovery of the circulation; a discovery, which has immortalized his name, and effected a revolution in the theory and practice of the healing art. It is, indeed, only by a comparison of the healthy and morbid structure of the organs, with their physiological and pathological manifestations, that the advancement of Medical science can be sufficiently rapid and sure to wipe out its reproach of being a mere conjectural art.

Rescued from its degradation in the hands of the barbers, and elevated to its deserved rank among the useful arts, Surgery has continued to advance with a regular step, unaffected by the changing theories, which too often produce sudden revolutions in the other branches of therapeutics. Its utility cannot be denied by the most hardy skeptic, who declaims against the uncertainty of Medicine. No one, though he may doubt the efficacy of any mode of treating typhus fever, can withhold his conviction of the benefits which the Surgical art is capable of conferring on humanity, when he sees a fractured limb consolidated, or an unsightly tumour removed.

But though the practice of Surgery may thus appear to be more certain in some of its results, it is closely connected with the other branches of Medical Science. The well instructed surgeon must be acquainted not only with healthy and morbid Anatomy, of the importance of which I have given ample illustrations, but he must have a knowledge of healthy functions of the organs, whose lesions fall within the domain of his art. How will he be able to appreciate their diseased manifestations, if he be ignorant of their physiological actions? He must be acquainted, too, with the general principles of internal pathology, in order, to understand the internal inflammations and febrile movements, which complicate diseases Surgical in their origin. Indeed, so indeterminate are the limits between the two

great divisions of the healing art, that they can only be separated for the convenience of practice. And though the art of diagnosis in Surgical diseases is more frequently aided by the direct evidence of the senses, it can seldom be complete without an examination of the state of the internal organs, which may become the seat of morbid changes and depositories, in consequence of a solution of continuity, in a distant part of the body. Thus, besides an examination of the signs furnished by changes in the form, size, direction, consistence, temperature and other properties recognized by the senses, and by a modification of the vital acts of the organs affected, we have frequently, before a positive diagnosis can be established, to interrogate the patient or his friends, on all the anterior circumstances ; as the probable predisposing and exciting causes, the march of the disease, and the influence of previous treatment ; to examine the sympathetic disturbance of functions in the other organs ; and finally, to arrange these different facts, and estimate their value by a comparison with the results of experience or the recorded observations of others.

Thus, although the division of labour in large cities has induced a part of the Medical community to practice exclusively this branch of the profession, I hope to convince you before the termination of the course, that the dignified art of Surgery, does not consist solely in the amputations of limbs or extirpation of the tumours, and that your practice cannot be permanently successful unless based upon an acquaintance with the laws of the animal economy, as developed in the other branches of Medical Science.

In conclusion, Gentlemen, allow me to add, that I enter upon the performance of my duties with a fixed determination, to devote to it all the energies of my mind. Fully aware of the responsibility of the trust confided to me, I shall spare no exertions to gain your approbation of my labours in your service, in the earnest endeavour to guide you onwards in the paths of a science to which my humble talents will be zealously devoted. It is a science, in which amid much that is doubtful and unknown, there is yet much of positive observation, but of which, being "daughter of time and not of genius" many of the branches are yet new ; one to which you may devote your whole lives and not have cause to regret a loss of time. Regarding it as a science in which discoveries of practical importance are daily made, you will not imitate the inglorious example of those, who, consoling their ignorance in idle reflections up-

on the uncertainty of Medicine, would say to the zealous inquirer "thus far shalt thou go, but no farther." But impressed with the deep responsibility of the duties of your vocation, you will now prepare to lay in a stock of valuable facts and principles, to which your after investigations will add a daily contribution. With such a spirit directing and stimulating our exertions, I may look forward to a mutually happy and profitable termination of our labours.



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